Cloud Platform Analysis - Benchmarking

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Introduction -

Cloud computing is the on-demand availability of computer system resources, especially data storage and computing power, without direct active management by the user. The term is generally used to describe data center's available to many users over the Internet.
The motive of this project is to provide a clear understanding and the workflow of different Cloud environments. It also covers some real world platform and their analysis on the same.
The project is divided into 5 phases. Throughout this case study we've tried to figure out the best cloud practice suitable for all type of business.
Scaling from a large scale business to start-ups to individual projects.

Literature Review -

Studying about the cloud market is always fascinating. The market today offers a wide range of traditional cloud platforms.
Moreover, there are a range of platforms which uses these IAAS clouds to run their service, allowing the user to host his/her applications without having to worry about managing too much details of the backend cloud services which include, creating instances, putting up load balancers and many more. We've included such platforms in our study and did a thorough investigation on their efficiency. And also included comparative analysis of different traditional cloud platform like AWS and AZURE.

Individual Analysis Index -

1. AZURE Cloud -

https://drive.google.com/file/d/10RYu3P-_FZ7cqv1ZgyqHFMFjZwYRgVDU/view?usp=sharing

- Cloud computing service created by Microsoft for building, testing, deploying, and managing applications and services through Microsoft-managed data centers.
- This is one of those traditional cloud platforms which has it's esteem reputation in the market. Their documentation and technical support is highly active.

2. AWS Cloud -

https://drive.google.com/file/d/1cjcVLdhOuyWEzCWb99dBnhnQ9y-0Fin0/view?usp=sharing

- Netlify lets users host websites by dragging and dropping components from their computers onto its web application, or by directly importing their Git
- Netlify specializes in cutting-edge web hosting and automation solutions for businesses. It enables users to set up websites instantly.

Comparative Analysis Index -

1. Heroku vs. AWS (Elastic Beanstalk)

https://drive.google.com/file/d/1z9mupazLGd9tHzZzi7U8NnfRUqu2R_03/view?usp=sharing

- These cloud platform are what we say, derived from traditional cloud platform. For example the Netlify uses AWS Instance in the backend and provides a user-friendly platform.
- Both the deployments are done using CLI and they support CI/CD which is an amazing feature for new comers.

2. AZURE vs. AWS

https://drive.google.com/file/d/1-6qIcyHdgG8boXc5Sl5_KLniBLsDSDwf/view?usp=sharing

- In this report we've compared amazon's cloud AWS and microsoft's cloud Azure. The comparision includes picing, performance, maintainance, efficiency and the ease of use.

- We've depoyed a Django application on both these clouds and have done a deep investigation of all the processes that the cloud runs.

3. Netlify VS Heroku

https://drive.google.com/file/d/1kmNdbziXSDgJKSJAPxpAR_-RGqFknZbP/view?usp=sharing

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The Files are also attached with the submitted folder.

Which Platform To Choose ?

The decision choosing cloud platform now depends upon a lot of factors. And we know using cloud technologies has become a must for both large businesses, startups as well as for education. The cloud market is expanding at a quick pace. Numerous providers offer their platforms, so the options abound.

The problem is that it can be really challenging, especially for a newcomer, to find the best solution for the company's strategy. The process of selecting a cloud platform is a real hard task as numerous platforms provides a number of services. So now it totally depends upon these factors

1. Cost -

While it should never be the single or most important factor, there's no denying that cost will play a big role in deciding which cloud service provider(s) you choose. It's helpful to look at both sticker price and associated costs (including personnel you may need to hire to manage your instances).

2. Business Needs-

Service Levels

This consideration is essential when businesses have strict needs in terms of availability, response time, capacity, and support (which, let's be honest, almost all do these days). Cloud Service Level Agreements (Cloud SLAs) are an important element to consider when choosing a provider. It's vital to establish a clear contractual relationship between a cloud service customer and a cloud service provider. Particular attention should also be paid to legal requirements for the security of data hosted in the cloud service, particularly in light of GDPR regulations. You need to be able to trust your cloud provider to do the right thing, and you need a legal agreement that will back you up if something goes wrong.

2. Support

Support is another parameter that requires careful consideration. If you need help, will you be able to get it quickly and simply? In some cases, the only support you will get is through a chat service or call center. This may or may not be acceptable to you. In other cases, you may have access to a dedicated resource, but there's a good chance there will be constraints on time and access. Ask questions up front about what level and form of support you will have access to before you choose a cloud provider.

3. The Cloud Types -

The type of cloud depends upon the company's goal, security expectations, expenses, reliability and many more factors. Given below are some of the major types of cloud platform.

- **Public clouds** are more suitable for non-sensitive data storage, as they use a shared infrastructure and serve multiple customers. There are both free and pay-per-use options. This option is the most vulnerable to cyber-attacks.

  Pros: flexibility; scalability; reasonable price; you don't have to manage it yourself.

  Cons: security issues; issues of compliance for certain industries (e.g. finance).

- **Private clouds** are suitable for sensitive data storage (e.g. for the healthcare industry) as they use a proprietary infrastructure and serve just one customer. They work well for changing business models and unpredictable needs.

  Pros: high security; scalability.

  Cons: management, price (additional expenses for staffing, maintenance, virtualization, cloud software and tools).

- **Hybrid clouds** combine the best features of the two above-mentioned options. They consist of several private and public clouds, and a company may shift its workloads between them. An on-premise private repository can be used for sensitive data and a public one — for less sensitive information. Hybrids are ideal for highly changeable workloads.

  Pros: maximum flexibility; easier access for mobile and remote users enhanced agility.

  Cons: complex management due to complex infrastructure higher cost security (have some equal vulnerabilities in public clouds).

- **Multi-clouds** have become a new trend in 2018. This approach implies that a client chooses several providers and uses their platforms and environments for different purposes as a coherent system. This is a sound approach as soon as one service may not be enough to comply with all of the needs of a large organization.

Conclusion -

The analysis of the different kinds of platforms shows that there is no right answer to the question - Which platform should I use to host my application?
We clearly analyse that this totally depends upon the business need and every platform performs good in something and lack in some other thing.
The kind of data also plays a key role in selecting a cloud platform.
The selection of which cloud platform to use is done after thorough analysis of the insights and services that the cloud offers, and what the company needs.